

## TRUNCATED PYRAMIDAL GOLF BALL POSITIONING DEVICE

### BACKGROUND OF THE INVENTION

#### Field of the Invention

**[0001]** The present invention relates to a positioning device having a hopper and a tray that are formed to stack golf balls arranged within into a truncated pyramid stack.

#### Discussion of Related Art

**[0002]** Positioning devices capable of stacking golf balls to form a pyramidal stack of golf balls are known from U.S. Patent No. 5,551,832 and U.S. Patent No. 5,595,312. The devices include a pyramidal shaped hopper that is placed in a tray. A base layer of the pyramidal stack of golf balls rests on the tray.

**[0003]** If one were to invert the hopper and rest the apex on a flat, horizontal surface, the hopper would topple. This is because the dimension of top of the apex is too small to stably self-support the hopper. Similarly, if the hopper is upright on the tray and a further tray of another positioning device is placed on top of the apex of the pyramid shape of the upright hopper, this further tray would topple for the same reason. In other words, filled pyramidal positioning devices can not be stably self-stacked one atop the other because they topple due to the relatively small dimension at the top of the apex of the pyramid shape.

**[0004]** Retailers desirous of stocking such filled pyramidal positioning devices, therefore, are unable to readily stack one atop the other to conserve floor or shelf space. Instead, they may stock filled pyramidal positioning devices without stacking them and they may stock empty pyramidal positioning devices that can be stacked.

**[0005]** It would be desirable to configure the pyramidal positioning devices to enable them to be stacked one atop the other when they are filled with golf balls.

#### SUMMARY OF THE INVENTION

**[0006]** One aspect of the invention relates to a golf ball positioning device suited to accommodate within an internal cavity a stack of golf balls that form a truncated pyramid. The golf ball positioning device includes a hopper and a tray each having a respective surface that extends in a respective plane parallel to each other and each of a dimension to stably self-support the assembled positioning device without toppling on a flat, horizontal surface.

**[0007]** The hopper and tray define an internal cavity when in a closed position that may be constituted by at least a base level and a truncated level, possibly intermediate levels as well. Each level accommodates a layer of golf balls. The tray may have an indentation whose shape complements a shape of the truncated level to facilitate stacking of identical truncated pyramidal positioning devices one atop the other each in an upright orientation.

#### BRIEF DESCRIPTION OF THE DRAWING

**[0008]** For a better understanding of the present invention, reference is made to the following description and accompanying drawings, while the scope of the invention is set forth in the appended claims:

**[0009]** Fig. 1 is an isometric view of a positioning device in accordance with an embodiment of the invention.

**[0010]** Fig. 2 is a bottom view of Fig. 1.

**[0011]** Fig. 3 is an elevation view of two positioning devices of Fig. 1 stacked one atop the other.

**[0012]** Fig. 4 is an isometric view of a spacer.

**[0013]** Fig. 5 is an isometric top view of a dual shell embodiment in an open position.

**[0014]** Fig. 6 is an isometric bottom view of a dual shell embodiment in an open position.

**[0015]** Fig. 7 is an isometric top view of the dual shell embodiment of Figs. 5 and 6, but showing the manner of stacking the dual shell embodiment in the open position.

**[0016]** Fig. 8 is an isometric top view of the dual shell embodiment of Figs. 5 and 6 in a closed position.

**[0017]** Fig. 9 is an isometric bottom view of the dual shell embodiment of Fig. 8.

**[0018]** Fig. 10 is an isometric top view of the dual shell embodiment of Figs. 8 and 9, but showing the manner of stacking the dual shell embodiment in the closed position.

#### DETAILED DESCRIPTION OF THE INVENTION

**[0019]** Figs. 1-3 show a positioning device that includes a hopper 10 and a tray 12 that form an internal cavity when in a closed position. Golf balls filling the internal cavity stack to form a truncated pyramidal shape. One or more golf balls, otherwise filling the interior, may be replaced by a spacer insert 14.

**[0020]** As shown in Fig. 4, the spacer insert 14 may be of solid or hollow construction and may have all flat surfaces. If hollow, the spacer insert may have a lid hinged inside (hinge not shown) or slideably secured to an adjacent wall of the spacer insert. This permits one or more items 30 to be placed into the spacer insert 14, or removed from it. The items may be golfer's tees or other items pertaining to golf, although such items may as an alternative have nothing to do with golf.

**[0021]** The hopper may be made from transparent or translucent material, because the inside may be viewed from outside. Thus, prized golf balls, for instance, may be displayed prominently within the hopper. The inside of the truncated pyramidal stack, which is not visible from the outside when the hopper is upright, may have the spacer insert. However, the spacer insert 14 may be removed and still the golf balls will remain in their stacked, truncated pyramidal shape.

**[0022]** The golf ball positioning device may include the tray 12 having an upstanding periphery 20 as shown in Fig. 3. The truncated pyramidal stack of golf balls 16 are stacked upright on the tray 12. The truncated pyramidal stack of golf balls 16 include a plurality of layers of golf balls. These layers include a base layer 22 and a top layer 24 atop the base layer 22. The base layer 22 fits within the confines of the upright periphery 20 and contacts an inner facing surface of the upstanding periphery. The base layer 22 may have a void 26 between the tray and at least some of the golf balls of the top layer 24 that is free of any golf balls, the void being of a dimension such that a volume of one or more of the golf balls may be accommodated in the void. That void may be where the spacer insert 14 was located before its removal from the confines of the hopper 10. Alternatively, the spacer insert 14 may be left within the hopper to rest on the tray 12 and fill in this void on the tray.

**[0023]** The stack of golf balls are stable for standing upright if arranged in a truncated pyramid, such as in two layers -- the top layer having four balls and the bottom layer having eight balls with a spacer. A regular pyramid would have three layers -- the top layer being a single golf ball. However, the truncated pyramid of this invention envisions the omission of such a single golf ball so that the layer with four golf balls becomes the top layer, which gives rise to the truncation of the pyramid

**[0024]** Since the top and bottom exterior surfaces of the positioning device are substantially flat that extend in parallel, horizontal planes, identical

ones of such positioning devices may be stacked one onto the other, which facilitates storage in a more compact manner than would otherwise be the case.

**[0025]** Figs. 5-10 show a dual shell embodiment of the invention. There is a hopper 30, a tray 32 and a hinge 34 that extends along one common side of the hopper 30 and the tray 32 to join the same to enable them to pivot between an open position and a closed position. The hopper 30 and the tray 32 have respective retainers 36, 38 shaped with surfaces that slide against each other to snugly friction fit with each other in the closed position of Figs. 8-10. Under manual pressure, the retainers 36, 38 may be released from each other by pulling the hopper 30 and the tray 32 in opposite directions on a side that is opposite the common side with the hinge 34. Once the retainers 36, 38 released, the hinge 34 preferably spring biases the hopper 30 and the tray 32 into a fully opened position of Figs. 5-7.

**[0026]** The hopper 30 and tray 32 in the closed position define an internal cavity in the form of a truncated pyramid. When golf balls fill the internal cavity, the hopper 30 and tray 32 are configured so that the position where golf balls stack within the internal cavity form a truncated pyramid shape.

**[0027]** The hopper 30 has a truncated level 40 for accommodating a truncated layer of golf balls. The tray 32 has a base level 42 for accommodating a base layer of golf balls. The hopper 30 and the tray 32 each have a respective open face. In the embodiment of Figs. 5-10, the open

face of the hopper 30 forms part of the base level. However, an alternative construction could have the open face of the tray form part of the truncated level. If desired, the tray, hopper or both may also form one or more intermediate levels arranged between the truncated and base levels when the golf ball positioning device is in a closed position.

**[0028]** The truncated level 40 is smaller in dimension than the base level 42. The tray 32 may have a central indentation 44 that complements the shape of the truncated level 40 of the hopper 30. This allows the truncated level 40 of the hopper shell 30 of one device to be fitted into the indentation 44 of the tray 32 of another identical device so as to snugly fit with each other. Such enables the devices to be stacked on atop the other when the hopper shell 30 and the tray 32 are in a closed position as shown in Fig. 10.

**[0029]** The hopper 30 and tray 32 may have dimples or bulges 46 spaced from each other and arranged to either accommodate receiving a golf ball or separating adjacent golf balls in a layer of the stack. The dimples or bulges 46 may each have a curvature that is either convex or concave, depending upon its role in either receiving or separating a golf ball. If the dimples or bulges are formed in the truncated level 40 and the indentation 44, preferable they correspond with each other in location and shape so as to enable the indentation 44 to snugly fit onto the truncated level 40 when stacking identical positioning devices in the closed position as shown in Fig. 10. Instead of providing the dimples with a curvature, the same effect may be provided with other types of configurations, such as stepped.

**[0030]** If desired, an inwardly directed dimple may be arranged in the center of the flatted top of the truncated level 40 of the hopper 30 and a complementary outwardly directed dimple may be arranged in the center of the flattened portion of the indentation 44 of the tray 32. The inwardly directed dimple and the complementary outwardly directed dimple are arranged to mate with their complementary counterparts on identically formed positioning devices when stacked in the manner of Fig. 10. They would fit into their counterparts of identically formed positioning devices when stacked in the manner of Fig. 7. The peripheral region immediately surrounding the inwardly directed dimple and the outwardly directed dimple may be flat.

**[0031]** Alternatively, the tray 32 could be symmetric or identical in configuration with the hopper 30. Such could give rise to three layers of golf balls resembling a truncated pyramid when viewed from the top or resembling a truncated pyramid when viewed from the bottom.

**[0032]** The clam shell embodiment of Figs. 5-10 may be made of a plastic material. The dimples or bulges 46 shown may be dispensed with and replaced by enlarging the dimension of the truncated and base levels and providing them with inclined surfaces to approximate the contour of a truncated pyramid. Hanging apertures 48 may be provided in the periphery of both the hopper and tray to align with each other in the closed position as shown in Fig. 8. This enables insertion of a display rack rod so that the positioning device may be hung from the display rack rod of a display rack.



**[0033]** The hopper 30 and tray 32 are each preferably made of an elastic, resilient material such as rubber or pliable plastic. Preferably, the material has memory.

**[0034]** The peripheral portion of the bottom of the tray 32 immediately surrounding the indentation 44 may be flat, jagged or rounded to define a surface 50 that extends within a plane. The truncated level 40 of the hopper 30 has a top that may be flat, jagged, or rounded to define a surface 52 that also extends in a plane that is parallel to the plane through which extends the surface 50. If either surface 50, 52 is placed on an external, flat horizontal surface, the positioning device is stably supported without toppling over when in the closed position.

**[0035]** While the foregoing description and drawings represent the preferred embodiments of the present invention, it will be understood that various changes and modifications may be made without departing from the spirit and scope of the present invention.